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ABSTRACT

The purpose of this report is to provide information and analysis about the extent to which the experience of a group of minority students who successfully completed the doctorate might be relevant to the issues now under consideration in the Bakke case. The Ford Foundation and Danforth Foundation programs are examined in an attempt to produce information and insight that would be valuable in the context of qualifications for admission into graduate and professional schools. In addition, a large base of data gathered about the backgrounds, aspirations, and graduate-school experience of more than 1,000 minority students from these programs is summarized. Particular emphasis is placed on how this information pertains to the reasonableness and effectiveness of programs which focus upon specifically disadvantaged racial/ethnic groups and which make flexible use of undergraduate grade point averages and/or Graduate Record scores as criteria in determining students' qualifications for graduate study. (Author/EB)

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Minority Admissions and Performance in Graduate Study

A Preliminary Study of Fellowship Programs of the Ford Foundation and the Danforth Foundation

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A Report to the Ford Foundation

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The following report was presented first at an Aspen Institute Conference in Glen Cove, N.Y., August 2, 1977.

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The purpose of this report is to provide information and analysis about the extent to which the experiences of a group of minority students who successfully completed the doctorate might be relevant to the issues now under consideration in the Bakke case.*

Neither Allan Bakke nor the California State Supreme Court referred in the record to the fact that among those admitted to medical school at Davis, were forty-two white applicants with lower numerical scores than Bakke (eight with lower bench-mark ratings and thirty-six with lower grade point averages). Instead they chose to focus upon the sixteen places which the University had targeted for minority students and which the Court characterized as "a quota system."

The Ford Foundation and the Danforth Foundation have been sponsoring programs of graduate fellowships for minority graduate students since 1967. Each foundation based its program on a concept of racial or cultural disadvantage and granted fellowships to Blacks, Mexican Americans, Puerto Ricans and Native Americans in an effort to ameliorate their disadvantages and to reduce their under-representation in higher education.** An examination of these programs was under-

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*The Bakke case raises very sharply the question, "What characteristics make a person qualified for admission to professional and graduate schools?" In ruling against the Regents of the University of California, the California State Supreme Court answered that question in a particular way by holding that only "racially neutral" characteristics can be appropriately considered. Hence, that Court (as well as the trial court before) declared a program of special admissions for minorities at the University of California Medical School, Davis, unconstitutional because it viewed race as a relevant characteristic and because it did not adhere consistently to numerical standards such as undergraduate grade point averages and MCAT scores. The University was declared to be guilty of practicing "reverse discrimination" and of admitting minority students who were "less qualified" than the complainant, Allan Bakke, whose numerical scores were higher but who was not admitted.

**A few whites received fellowships because they taught at black colleges where they were working directly in a situation of racial disadvantage which they were helping to overcome.

taken in the belief that it might produce information and insight that would be valuable in the context of the present discussion about qualifications for admission into graduate and professional schools.

Over the last ten years, the administrators of the fellowship programs for both foundations have attempted to maintain complete records on all of the students. These records include considerable information that the students were required to provide to us in the fellowship application process--undergraduate grades, Graduate Record Examination scores, recommendations from several undergraduate teachers, and other evidence of special skills or abilities. In addition, we have collected information about their subsequent graduate school performance--grades, statements of progress from the students' graduate advisors, the students' own appraisals of their progress at various stages in their graduate careers, and, of course, whether or not they eventually earned the doctorate. As a result, we have accumulated a fairly impressive base of data about the backgrounds, aspirations, and graduate-school experiences of more than 1,000 minority students.

What follows is a summary of these data, particularly as they pertain to the reasonableness and effectiveness of programs which focus upon specially disadvantaged racial/ethnic groups and which make flexible use of undergraduate grade point averages and/or GRE scores as criteria in determining which students were qualified for graduate study. Three programs are involved, two sponsored by the Ford Foundation and one, the Southern Fellowships, sponsored by the Danforth Foundation (see appendix).

The Sample

Two different sets of data were examined to get a better understanding of the relationship between several traditional selection criteria and subsequent graduate school performance for minority students. The first data set consisted of the background and graduate school performance information for the initial cohort of 33 Ford Doctoral Fellows who entered graduate school in 1969. This analysis embraced those who had not matriculated successfully as well as those who had obtained the doctorate at the time of the study.

The second data set consisted of the background information of 495 persons (including 43 successful Ford Doctoral Fellows) who had obtained their doctoral degrees through one of the three minority graduate student programs since 1969 that were sponsored both by Ford and Danforth Foundations.* Graduate Record Examination scores and undergraduate grade point averages were available for 208 of these individuals and for use in this study.

As of 1976, doctoral degrees had been awarded to over 500 minority students who had received graduate fellowships from these programs sponsored either by the Danforth or by the Ford Foundation. Most of these were Black Americans, but about 20 per cent were Native Americans (15), Mexican Americans (70), or Puerto Ricans (19). Characterized by considerable diversity, these individuals earned their doctorates in a variety of disciplines from many different American universities, and are now employed in a wide range of academic settings.

It is worth mentioning that anyone who wanted to gain

*Details of these programs are given in the Appendix.

an understanding of what it is like to be a Black American, Native American, Mexican American, or Puerto Rican in American graduate schools in the late 1960s and the early 1970s would be hard pressed to find richer or more compelling accounts than those included in the student comments in these records. In the future, we plan to carry out an extensive analysis of these accounts for the purpose of learning more about the general questions of the flow of minority talent and the origins of minority scholars.

An important caveat about the present account should be noted. The data are about students aggregated across various academic disciplines and institutions. In view of what is known about differences in grading practices and standards of evaluation across disciplines and among institutions, a more rigorous analysis would require an examination of the relations between various predictors and subsequent performance criteria by analyzing data separately by academic departments. Such a situation, if we could find it, would be ideal for research purposes. But we do not have that luxury with these data: Not enough students entered any single department to make such a study possible. So what is presented here are data for students aggregated across fields and institutions; the data are therefore less than perfect, but still quite useful for the purpose of examining the relation between selection process and performance by successful minority graduate students.

Observations

With these limitations in mind, these records tell us several things that are relevant to the issues in the Bakke case:

First, on the basis of the data available for the initial cohort of 33 Ford

Doctoral Fellows, it appears that the two criteria most commonly used in the graduate and professional school admissions process -- namely, undergraduate grades (GPA-grade point averages) and, Graduate Record Examination scores (GRE) -- have different validities for predicting graduate school performance. GRE scores, for example, tend to be positively but modestly correlated both with graduate school grades and with whether or not one eventually earns the doctorate. In other words, students with higher GRE scores tend to get higher grades in graduate school and to complete their degrees more often than students with low GRE scores. In this respect, the data for minority students are quite similar to those reported in various other studies for graduate students not identified by race. Undergraduate grades, on the other hand, appear to be somewhat less closely related to graduate school performance by minority students.

Second, the analysis of a small sample of the total--33 minority Doctoral Fellows--tells us that the GRE's on both Verbal and Advanced tests correlated with first year graduate school grades around the high .30's and low .40's, where a correlation of 1.00 is perfect prediction. About the same correlation coefficients were found between GRE scores and the criterion of whether or not a student eventually obtained the doctorate. This means that these traditional selection measures do indeed improve the accuracy of prediction of graduate school performance for minority students. At the same time, however, it is clear that these traditional selection criteria are far from perfect predictors and that their use by themselves will always result in some prediction errors. To put it another way, though this study found that as a general rule minority students

with higher test scores also tend to be more successful in graduate school, there are exceptions to this rule which occur in two ways:

(a) Some students with high test scores who are selected for graduate or professional school do not succeed and eventually drop out. Frequently their reasons for dropping out are more personal or social than academic, though the distinction between these two is often not clear. In any event, whatever the reasons for attrition, we know that some students who are expected to do well in graduate school do not. These students will be found in the lower right quadrant (C) of Figure 1.

(b) Sometimes students who are not expected to do well turn out to succeed (These students would be found in the upper left quadrant (D) of Figure 1).

Unfortunately, we usually do not know about many of the latter type of exceptions to our general rule, since such students are often rejected on the basis of low test scores or undergraduate grades. On occasion, however, we find a situation in which predictive information is obtained for applicants but not necessarily employed in selection decisions. In such cases it is possible to determine how many students with low standing on the predictor variables went on to succeed in their graduate work--to examine, in other words, the second of our two previously mentioned exceptions to the general rule. Fortunately, this inquiry was able to study this kind of exception among some of our Ford and Danforth Fellows.

Third, and especially important to this discussion, is the diversity of the students who received the Ph. D. with respect to the several variables traditionally used to select students from graduate school. On the one hand,

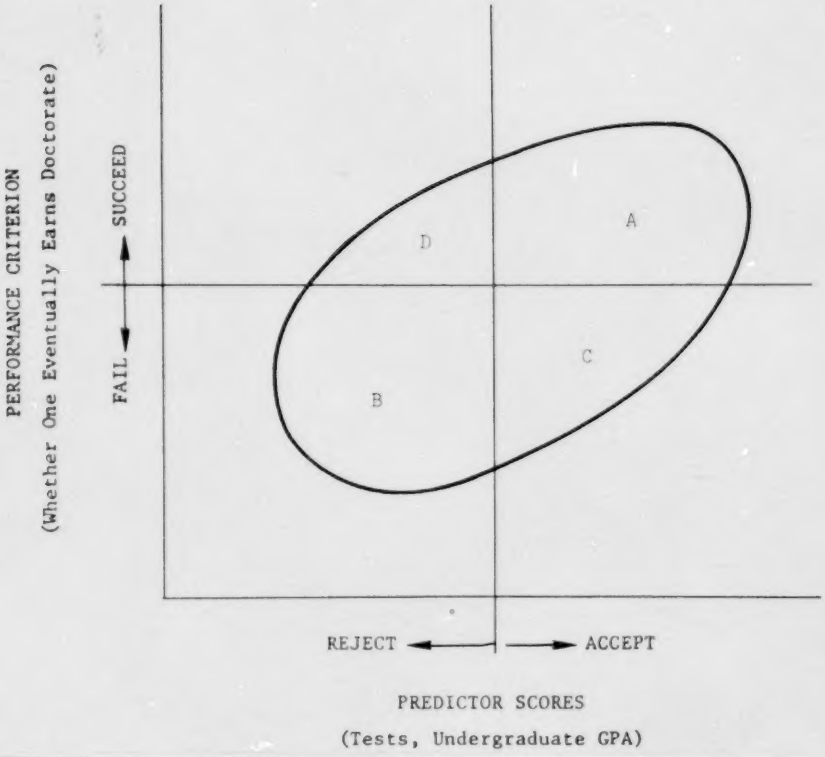

FIGURE 1

Comment: Quadrants A (upper right) and B (lower left) represent the general rule. That is, students with high test scores (or high undergraduate grades) do well in graduate school (quadrant A), and those with low predictor scores do poorly (quadrant B). Quadrants C and D, on the other hand, represent the exceptions to the general rule. Students in quadrant C were expected to do well, but did not; students in quadrant D were not expected to do well (and normally wouldn't even have been admitted) but were successful. See text for fuller discussion. Ellipse simply represents the boundaries of the bivariate distribution of predictor scores and criterion scores when there is a moderately positive relationship between the two.

many of them were extremely bright and academically able, as testified by very high GRE scores and undergraduate grades. On the other hand, many others did not measure up nearly so well on the traditional predictors. Yet both groups had earned their doctorates by 1976, some of them from some of the most distinguished American universities.

Fourth, and most important, this review tells us that many of these successful minority students now holding Ph.D. degrees would never have gotten the chance to prove themselves if they had been considered for admission to graduate school only on the basis of test scores or undergraduate grades. Both GRE-Verbal scores and undergraduate grade-point averages were available for 208 doctorates. Table 1 summarizes data on the proportion of these students who were below certain levels on both predictors.

The top third of this table indicates what would have occurred if various cut-off scores on just the GRE-Verbal test had been used in selecting these students. The first thing that is apparent is that the effects would have differed rather dramatically among the various programs. Deciding not to admit applicants with GRE scores below 500, for example, would have resulted in the rejection of nine of the twenty-seven Black Doctoral Fellows and six of the sixteen Mexican American Doctoral Fellows, and much larger proportions of both the National Fellows and Southern Fellows. The data in the column at the far right of the table are probably the most important. Here we see that only 3 percent of the 208 doctorates would have been denied admission had a cut-off score of 300 been used with the GRE-Verbal; 21 percent would have been rejected with a cut-off score of 400; 58 percent using a cut-off of 500, and so on. To sum up, more

Table I

Effects of Using Various Selector Cut-Off Strategies on Minority Doctoral Attainment

If these predictor cut-off scores had been used:	It would have reduced the actual number of minority doctorates as follows: Ford (1) Black Doctoral Fellows (N=27)	Ford (1) Mexican American Doctoral Fellows (N=16)	Ford (2) National Fellows (N=64)	Danforth (3) Southern Fellows (N=101)	And reduced the total percent of minority doctorates (total N = 208) as follows:
GRE-V Only:					
300	00	01	02	03	03
400	02	01	14	26	21
500	09	06	36	69	58
600	18	14	53	9[illegible]	84
700	26	16	62	97	97
Undergraduate GPA Only (4.0 scale):					
2.50	01	01	08	30	19
3.00	06	05	39	62	54
3.50	16	09	60	86	82
3.75	24	11	64	98	95
Various possible combinations of GRE-V and Undergraduate GPA:[a]					
GRE-V and GPA					
400 and 2.50	00	00	01	11	06
400 and 3.00	00	00	08	20	13
400 and 3.50	00	01	14	24	19
500 and 2.50	00	01	05	21	13
500 and 3.00	02	03	24	47	37
500 and 3.50	06	06	35	61	52
600 and 3.00	04	05	35	57	49
600 and 3.50	11	09	51	78	72
600 and 3.75	16	10	53	89	81
700 and 3.50	27	09	58	100	93
700 and 3.75	27	11	62	101	97

[a]That is, if the applicant had been below both cut-off points.

than half of the students who did earn the doctorate would not have been admitted to graduate school in the first place if a GRE-Verbal score of 500 or more had been a criterion.

The middle section of the table reports similar data for undergraduate grades. It indicates that the use of undergraduate grades as the sole criterion in selecting these minority students would have had effects similar to those described for the GRE test scores. For example, if admissions committees had used an undergraduate GPA of 3.00 as a cut-off, 54 percent of these successful minority students would have been rejected; a cut-off of 3.50 would have eliminated 82 percent, and so on.

Finally, the bottom portion of Table 1 shows what would have been the result of using various combinations of GRE-verbal scores and undergraduate grades. Had a multiple cut-off somewhere around the middle--say, a GRE-verbal score of at least 500 and a GPA of at least 3.00 been used more than one-third of these students (37 percent) would have been rejected.*

Conclusions

From these data we conclude that in spite of the overall validity of GRE scores and undergraduate grades--that is, the general tendency for students with

*In actual practice many admissions committees do not use a cut-off procedure in the selection of graduate students. An alternative practice is for undergraduate grades and test scores to be used jointly in a regression analysis in which both variables are weighted and combined to arrive at a prediction of the applicant's chances of graduate school success. Nevertheless, the figures in Table 1 are useful in making the point about the amount of error in such predictions.

higher test scores to do better in graduate school--it is clear that there are numerous exceptions to the rule. Large numbers of the Ford Foundation and Danforth Foundation minority fellows might well have not been admitted to graduate programs if admissions committees had employed only numerical parameters in their assessment of student potential. This is not to deny the relevance and importance of either test scores or undergraduate grades as partial evidence to be considered in any estimate of a student's likelihood to succeed academically. Rather, the analysis suggests that such criteria are not sufficient in themselves, and if used by themselves will result in numerous errors of prediction.

To return briefly to the two different kinds of prediction errors or exceptions to the general rule that one finds in making predictions of complex behavior: (1) selecting students who later do not succeed, and (2) rejecting students who would have succeeded if accepted. These two types of prediction errors or exceptions to the general rule are inextricably related, for any attempt to reduce one type of prediction error will automatically increase the other. Figure 1, for example, indicates that raising the cut-off level for selection will decrease errors of the first type, but only at the cost of increasing errors of the second type. So eventually graduate and professional schools must confront the question, "Given that our predictions will continue to be fallible, which of these two types of errors are we more willing (or more able) to live with?" Each type of error has its price. The medical schools of the country are understandably concerned about the waste that results when medical students do not make the grade. Because of their concern for this waste of resources, they are anxious to reduce the errors of the first kind--admitting students who subsequently drop out of medical school. But when it comes

to advanced training for American minorities, concern for the health of the society and for simple justice makes it imperative to be equally concerned about the second of these two types of errors--that is, about denying admission to graduate or professional school to students who would have been successful had they only been given the chance. Hence, this paper underscores the importance for American society had the 37 percent of the 208 we know about, and probably an equivalent percent of the 500 minority Ford and Danforth fellows who earned their doctorates, not have been admitted to graduate school because their GRE scores were below 500 or their undergraduate grades were lower than 3.00. They are examples not of admitting unqualified students, but of students who despite earlier low scores and grades, did make the grade in advanced study when given the opportunity.

APPENDIX

Ford Foundation and Danforth Foundation Graduate Fellowship Program for Minorities

The Danforth and the Ford Foundations have been sponsoring graduate fellowship programs for specially disadvantaged minority groups since 1967. Two principal factors lay back of both efforts: first, the perception that very few minority students were receiving awards from the general fellowship programs sponsored by these two foundations; second, the revelations of recent research by Ford Foundation staff and others of the magnitude of the gap between the production of minority and non-minority doctorates and what would be required in terms of philanthropic, university and government efforts if that gap was to be narrowed within the foreseeable future.

For example, from 1950 to the mid-1960s the Ford Foundation had made grants to individuals totalling an estimated $575 million for research, training, and other activities. Of this amount, approximately $350 million went as grants to other organizations which then regranted the funds to individuals they selected within the framework of the program purposes. These include such organizations as the National Merit Scholarship Corporation, the Woodrow Wilson National Fellowship Foundation, Educational Testing Service, the Council of Southern Universities, and the College Entrance Examination Board. It is estimated by staff who administered these programs that no more than 4 to 5 percent of such awards as the Woodrow Wilson and the National Merit Scholarships went to minority individuals.

The Danforth Foundation reports a similar pattern with respect to minority recipients, although from a much smaller base of total awards. In the same period Danforth made grants to individuals totalling approximately $48 million in a variety of programs that included their general Danforth Graduate Fellowship Program, Kent Fellowships, Graduate Fellowships for Women, and the Southern Fellowships Awards. Probably less than 4 percent of the awards went to U.S. born minorities.

Moreover, research reports produced in 1967 and 1968 by the Office of Special Projects' staff of the Ford Foundation revealed that less than 1 percent of America's earned doctorates were held by Black Americans in 1968. These reports also showed that without significant special attention, the prospects for change were bleak, for their research also showed that even between 1964 and 1968, a period of heightened national consciousness of the need for greater educational opportunity for minorities, only 0.8 percent of the doctorates awarded 37,456 individuals went to Black Americans. Other observers were reaching similar conclusions with respect to Black Americans, and the situation was even worse for Mexican Americans, Puerto Ricans, and Native Americans. It was against this background that the fellowship programs for minorities discussed in this paper evolved, with the general objective of increasing the number of doctorates in the four most underrepresented groups.

Ford Foundation Programs

The present Ford Foundation Graduate Fellowship Program is an outgrowth of two previous grant programs leading to the Ph.D.: the Advanced Study Program and the Doctoral Fellowships Program. The Advanced Study

grants established in 1967, were awarded to faculty in private, traditionally black colleges upon the recommendation of each institution's president. These awards enabled faculty to spend from one summer to a full year pursuing additional study or completing a doctoral degree. Faculty at public black colleges were invited to participate in 1968. By 1969, the Advanced Study Program was offered to black faculty in any institution of higher learning in the nation. Finally, in 1970, the program was expanded to include American Indians, Mexican Americans, and Puerto Ricans as well as Blacks requiring additional support to complete a doctoral degree. The commitment to each recipient was usually for one year.

The Doctoral Fellowship Program, created in 1969, differed from the Advanced Study Program in two principal ways. It was designed for students seeking a doctoral degree in order to pursue a career in higher education who had recently completed an undergraduate program, and it carried a five-year commitment contingent upon verification that the student continued making satisfactory progress in graduate school. Available to Black Americans only in 1969, it was expanded in 1970 to include American Indians, Mexican-Americans and Puerto Ricans.

The complexities of administering two separate and expanding programs--the Advanced Study and the Doctoral Programs--led to the formation in 1972 of the present Graduate Fellowship Program for American Indians, Black Americans, Mexican Americans and Puerto Ricans. The program sets aside each year enough money to carry the students selected in that year's cohort through their doctoral studies. It is aimed primarily at students entering Ph.D. graduate programs

rather than faculty members. Recipients may receive support for a maximum of five years, on a year-to-year basis depending upon satisfactory performance. In the Graduate Fellowship Program, as in the others that preceded it, recipients attend the university of their own choice.

The Graduate Fellowship Program is administered for the Foundation by two organizations--Educational Testing Service for grants for American Indians, Mexican Americans and Puerto Ricans; and, for fellowships for Black Americans, the National Fellowship Fund, Atlanta, an arm of the Council of Southern Universities with considerable experience administering the Danforth Faculty Fellowships for Black faculty members.

The Graduate Fellowship Program was designed to allow students up to five years of graduate study to complete the doctoral degree. The final cohort of fellows entering graduate schools as first-time students received initial Foundation support in the summer or fall of 1976. Fellows who remain in good academic standing in their pursuit of the doctorate will continue to be eligible for support until June 30, 1981, at which time the program will end.

During the fourteen-year span from 1967 to 1981, the total outlay for individual awards to minorities will have been about $42.5 million. It is estimated that the following numbers of individuals will have been assisted through this extended effort:

Faculty members and administrators who returned to graduate school to complete their studies, receive special training, or engage in research or other scholarly activity. In most cases only one year of support was provided. Program concluded.....1,000

Graduate students seeking the doctorate and contemplating careers in higher education. New graduate students are eligible for up to five years of support. Program will terminate on June 30, 1981..... 1,500

Total: different individuals.....2,500

Danforth Program

The Danforth Foundation program which contributed data for this paper is the Southern Fellowships Fund (SFF), which is administered by the Council of Southern Universities, Inc., SFF operates with funds provided initially and for most of its history only by the Danforth Foundation. With assistance from the Andrew W. Mellon Foundation as well since 1973, SFF will have distributed $7,250,000 by 1980 when the program is scheduled to end. It has made 1300 annual awards and has helped 215 individuals complete the doctorate. The vast majority of these have been Black Americans, although some non-minority group members and individuals from other minority groups who teach at black colleges have participated.

The primary purpose of the SFF program is to promote the development of the faculty and administrative staffs for colleges and universities in the United States. However, primary emphasis is being placed on providing black talent and other highly trained persons for the black colleges and universities. It provides first year, second year, third year, and dissertation year pre-doctoral fellowships as well as a limited number of post-doctoral awards to professors in the predominantly black colleges.